

EH-10992

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IN THE CLAIMS:

Please amend claims 1, 10, 17 and 25 as follows:

1. (Currently Amended) A method of restoring dimensions to an article, the method comprising the steps of:

providing an article having a section requiring dimensional restoration;

providing a rigid sintered preform having first and second layers made from different materials, the first and second layers having mechanical properties similar to that of the article, the second layer comprising a low melting point component such that the second layer has a lower melting point than the first layer, the first layer having better oxidation resistance than the second layer, wherein the rigid sintered preform is formed as a two-layered rigid sintered preform prior to being provided here, and wherein the first layer is disposed closest to the article between the article and the second layer; and

joining the preform to the article.

2. (Original) The method of claim 1, wherein the first layer of the preform includes a nickel-based alloy.

3. (Original) The method of claim 2, wherein the second layer of the preform includes a nickel-based alloy and a second alloy.

4. (Original) The method of claim 3, wherein said second alloy is a transient liquid phase alloy.

5. (Original) The method of claim 1, wherein the first layer of the preform is between about 0.005 inch and about 0.015 inch in thickness.

6. (Original) The method of claim 5, wherein the second layer of the preform is between about 0.020 inch and about 0.030 inch in thickness.

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7. (Previously Presented) The method of claim 1, wherein the joining step includes subjecting the article and preform to heat, wherein the preform melts to conform to the shape of the article.

8. (Original) The method of claim 1, wherein the article is an airfoil.

9. (Original) The method of claim 8, wherein the airfoil is a turbine vane.

10. (Currently Amended) A method of refurbishing an article to restore a desired flow area, the method comprising the steps of:

providing an article having a section requiring dimensional restoration;

providing a rigid sintered preform having first and second layers made from different materials, the first and second layers having mechanical properties similar to that of the article, the second layer comprising a low melting point component such that the second layer has a lower melting point than the first layer, the first layer having better oxidation resistance than the second layer, wherein the rigid sintered preform is formed as a two-layered rigid sintered preform prior to being provided here, and wherein the first layer is disposed closest to the article between the article and the second layer;

placing the preform adjacent the section of the article requiring dimensional restoration; and

subjecting the article and preform to heat.

11. (Original) The method of claim 10, wherein the article and preform are subjected to heat of between about 2125 degrees Fahrenheit and about 2155 degrees Fahrenheit for 15 minutes or less.

12. (Original) The method of claim 11, wherein the article and preform are thereafter subjected to heat of between about 2125 degrees Fahrenheit and about 2155 degrees Fahrenheit for 6 1/2 hours or less.

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13. (Original) The method of claim 12, wherein the article and preform are thereafter subjected to heat of between about 1900 degrees Fahrenheit and about 1950 degrees Fahrenheit for about 2 hours.

14. (Original) The method of claim 10, wherein the first layer of the preform includes a nickel-based alloy.

15. (Original) The method of claim 14, wherein the second layer of the preform includes a nickel-based alloy and a second alloy.

16. (Original) The method of claim 15, wherein said second alloy is a transient liquid phase alloy.

17. (Currently Amended) A method of restoring dimensions of an airfoil, the method comprising the steps of:

providing an airfoil having a section requiring dimensional restoration;

providing a rigid sintered preform having first and second layers made from different materials, the first and second layers having mechanical properties similar to that of the airfoil, the second layer comprising a low melting point component such that the second layer has a lower melting point than the first layer, the first layer having better oxidation resistance than the second layer, wherein the rigid sintered preform is formed as a two-layered rigid sintered preform prior to being provided here, and wherein the first layer is disposed closest to the article between the article and the second layer;

preparing the airfoil for attachment of the preform thereto;

placing the preform adjacent a convex side of the airfoil; and

subjecting the airfoil and preform to heat so as to cause the preform to soften and conform to the airfoil.

18. (Previously Presented) The method of claim 17, wherein the preparing step includes the step of removing any protective coatings on the turbine vane.

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19. (Previously Presented) The method of claim 18, wherein the preparing step further includes the step of cleaning the turbine vane.

20. (Original) The method of claim 17, wherein the step of subjecting the airfoil and preform to heat includes the step of heating the airfoil and preform in a furnace or heat chamber.

21. (Original) The method of claim 20, wherein the airfoil is placed in the furnace or heat chamber with a convex side of the airfoil facing upwards.

22. (Original) The method of claim 17, wherein the first layer of the perform includes a nickel-based alloy.

23. (Original) The method of claim 22, wherein the second layer of the perform includes a nickel-based alloy and a second alloy.

24. (Original) The method of claim 23, wherein said second alloy is a transient liquid phase alloy.

25. (Currently Amended) A method of restoring dimensions to an article, the method comprising the steps of:

providing an article made of a material;

providing a rigid sintered preform having a first layer of a material similar to said article and a second layer different than said first layer, the first and second layers having mechanical properties similar to that of the article, the second layer comprising a low melting point component such that the second layer has a lower melting point than the first layer, the first layer having better oxidation resistance than the second layer, wherein the rigid sintered preform is formed as a two-layered rigid sintered preform prior to being provided here, and wherein the first layer is disposed closest to the article between the article and the second layer; and

joining the preform to the article.

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26. (Original) The method of claim 25, wherein said first layer material is the same as said article.

27. (Original) The method of claim 26, wherein said first layer is a nickel-based alloy.

28. (Original) The method of claim 27, wherein the second layer of the perform is a nickel-based alloy and a second alloy.

29. (Original) The method of claim 28, wherein said second alloy is a transient liquid phase alloy.

30. (Withdrawn) A preform for restoring dimensions to an article, comprising:
a first layer of a material similar to said article; and
a second layer of a material different than said first layer;
wherein said preform is joined to the article to restore said dimensions.

31. (Withdrawn) The preform of claim 30, wherein said first layer material is the same as said article.

32. (Withdrawn) The preform of claim 31, wherein said first layer is a nickel-based alloy.

33. (Withdrawn) The preform of claim 32, wherein the second layer of the perform is a nickel-based alloy and a second alloy.

34. (Withdrawn) The preform of claim 33, wherein said second alloy is a transient liquid phase alloy.

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35. (Previously Presented) The method of claim 1, wherein providing the rigid sintered preform comprises:

providing a predetermined amount of a first blended powder, the first blended powder comprising a first powder, a second powder and a binder mixed together;

pressing the blended powder in a die to form the second layer;

adding a predetermined amount of a second blended powder onto the pressed second layer, the second blended powder comprising the first powder and the binder mixed together;

pressing the second blended powder and the second layer in the die together to form the preform; and

sintering the preform.

36. (Previously Presented) The method of claim 10, wherein providing the rigid sintered preform comprises:

providing a predetermined amount of a first blended powder, the first blended powder comprising a first powder, a second powder and a binder mixed together;

pressing the blended powder in a die to form the second layer;

adding a predetermined amount of a second blended powder onto the pressed second layer, the second blended powder comprising the first powder and the binder mixed together;

pressing the second blended powder and the second layer in the die together to form the preform; and

sintering the preform.

37. (Previously Presented) The method of claim 17, wherein providing the rigid sintered preform comprises:

providing a predetermined amount of a first blended powder, the first blended powder comprising a first powder, a second powder and a binder mixed together;

pressing the blended powder in a die to form the second layer;

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adding a predetermined amount of a second blended powder onto the pressed second layer, the second blended powder comprising the first powder and the binder mixed together;

pressing the second blended powder and the second layer in the die together to form the preform; and

sintering the preform.

38. (Previously Presented) The method of claim 25, wherein providing the rigid sintered preform comprises:

providing a predetermined amount of a first blended powder, the first blended powder comprising a first powder, a second powder and a binder mixed together;

pressing the blended powder in a die to form the second layer;

adding a predetermined amount of a second blended powder onto the pressed second layer, the second blended powder comprising the first powder and the binder mixed together;

pressing the second blended powder and the second layer in the die together to form the preform; and

sintering the preform.